

Cartographic-geoinformational estimation of spatio-temporal erosion dynamics of arable soils in forest-steppe landscapes of the Russian Plain

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Abstract The intensity of soil erosion in the forest-steppe landscapes of the Russian Plain was assessed using a cartographic method and GIS. The aim of the research was to devise a method for analysing the spatio-temporal dynamics of soil erosion intensity under conditions of high agricultural production. The intensity of anthropogenic erosion was assessed for the period from 1970 to 2007. These years cover the period of highest intensity of agricultural land use (USSR) and the subsequent period of agricultural loading reduction experienced during the transitional economy of Russia during the 1990s. Spatio-temporal analysis of soil erosion was conducted by the creation of vector thematic erosion maps, generated using the “overlay” cartographic approach. The change in soil erosion contours was estimated for each key soil type.

Key words soil erosion; GIS; thematic maps; dynamics; river basins